

What is claimed is:

1. A method for introducing a limited amount of mercury into an envelope of a fluorescent lamp during manufacture of the lamp, the method comprising the steps of:

forming the fluorescent lamp with an exhaust tubulation therein, the exhaust tubulation being open at an end thereof;

exhausting the interior of the lamp envelope through the exhaust tubulation open end;

placing a body of metal material not reactive with mercury in the lamp by way of the exhaust tubulation open end, the body having a coating of a metal which amalgams with mercury over a selected surface area of the body, and having mercury on the coated area of the body, such that a limited and selected amount of the mercury is retained on the body by the metal coating; and

sealing the open end of the exhaust tubulation;

whereby the amount of mercury retained on the body and thereby introduced into the lamp is limited by the selected surface area of the metal coating on the body.

2. The method in accordance with claim 1 wherein the body is of a selected one of (i) steel and (ii) a steel alloy.

3. The method in accordance with claim 1 wherein the selected surface area comprises a whole of the surface of the body.

4. The method in accordance with claim 1 wherein the selected surface area comprises less than a whole of the surface of the body.

5. The method in accordance with claim 1 wherein the coating is a selected one of silver, gold, indium, copper, tin, and alloys thereof.

6. The method in accordance with claim 1 wherein the amount of mercury retained on the body comprises up to about 9 milligrams.

7. The method in accordance with claim 6 wherein the retained amount of mercury comprises about 2-5 milligrams.

8. The method in accordance with claim 4 wherein the selected surface area comprises a single patch of the surface area.

9. The method in accordance with claim 1 wherein the body comprises a selected one of (i) a ball and (ii) a wire.

10. The method in accordance with claim 9 wherein the body comprises a wire, and including a further step of bending the wire into a U-shaped configuration before placing the wire in the exhaust tubulation.

11. A method for introducing a limited amount of mercury into an envelope of a fluorescent lamp during manufacture of the lamp, the method comprising the steps of:

forming the fluorescent lamp with an exhaust tubulation therein, the exhaust tubulation being open at an end thereof and being provided with a body retention structure proximate the open end;

exhausting the interior of the lamp envelope through the exhaust tubulation open end;

placing a body of metal material not reactive with mercury in the exhaust tubulation between the body retention structure and the exhaust tubulation open end, the body having a coating of a metal which amalgams with mercury, over a selected surface area of the body, and having mercury on the coated area of the body, such that a limited and selected amount of the mercury is retained by the metal coating; and

sealing the open end of the exhaust tubulation;

whereby the amount of mercury retained on the body and thereby introduced into the lamp is limited by the selected surface area of the metal coating on the body.

12. The method in accordance with claim 11 wherein the coating is a selected one of silver, gold, indium, copper, tin, and alloys thereof.

13. The method in accordance with claim 11 wherein the body comprises a selected one of (i) a ball and (ii) a wire.

14. A method for introducing a limited amount of mercury into a fluorescent lamp during manufacture of the lamp, the method comprising the steps of:

forming the lamp with an exhaust tubulation therein, the exhaust tubulation being open at an end thereof;

exhausting the interior of the lamp through the exhaust tubulation open end;

providing a body of metal material not reactive with mercury, the body being sized to enter the exhaust tubulation;

electroplating a coating of a selected one of (i) silver,  
(ii) gold, (iii) indium, (iv) copper, and (v) tin over  
a selected surface area of the body;

placing mercury on the coated area of the body, such that a  
limited amount of mercury is retained on the body by  
the metal coating;

placing the body in the lamp by way of the exhaust  
tubulation; and

sealing the open end of the exhaust tubulation.

15. The method in accordance with claim 14 wherein the body  
comprises a selected one of (i) a metal sphere and (ii) a metal  
wire segment.

16. The method in accordance with claim 15 wherein the body  
comprises a wire segment and the method further comprises the  
step of forming the wire into a U-shaped configuration.

17. A mercury carrier for placement in a fluorescent lamp during  
manufacture of the lamp, the carrier comprising:

a body of metal material not reactive with mercury;

a coating of a metal which amalgams with mercury over a  
selected surface area of said body; and

mercury disposed on said metal coating and retained thereby  
in an amount up to that permitted by the selected  
surface area of said metal coating;

said body being adapted for retention in the lamp after  
sealing of the lamp at completion of manufacture, and  
for introducing the permitted amount of mercury into  
the lamp.

18. The carrier in accordance with claim 17 wherein said body is  
a selected one of (i) a sphere and (ii) a wire segment, and is of  
a selected one of (i) steel and (ii) a steel alloy.

19. The carrier in accordance with claim 18 wherein said coating  
is a selected one of (i) silver, (ii) gold, (iii) indium, (iv)  
copper, and (v) tin, and alloys thereof.

20. The carrier in accordance with claim 19 wherein the selected  
surface of said body comprises a whole of the surface of said  
body.

21. The carrier in accordance with claim 19 wherein the selected  
surface of said body comprises less than a whole of the surface  
of said body.

22. The carrier in accordance with claim 18 wherein the amount of mercury retained by the carrier comprises up to about 9 milligrams.

23. The carrier in accordance with claim 22 wherein the amount of mercury retained by the carrier comprises about 2-5 milligrams.

24. The carrier in accordance with claim 21 wherein the selected surface area of said body comprises a single patch of the surface area.

25. The carrier in accordance with claim 17 wherein said body is adapted for placement in, and retention in, an exhaust tubulation disposed in the lamp and sealed at completion of manufacture of the lamp.

26. The carrier in accordance with claim 17 wherein said body is a wire segment of U-shaped configuration.

27. The carrier in accordance with claim 26 wherein said U-shaped wire segment exhibits sufficient springiness to retain itself in an exhaust tubulation of the lamp.

28. A method for introducing a limited amount of mercury into an envelope of a fluorescent lamp during manufacture of the lamp, and for reducing leachable mercury in the lamp upon destruction of the lamp, the method comprising the steps of:

forming the fluorescent lamp with an exhaust tubulation therein, the exhaust tubulation being open at an end thereof;

exhausting the interior of the lamp envelope through the exhaust tubulation open end;

placing a body of metal comprising iron in the exhaust tubulation open end, the body having a coating of a metal which amalgams with mercury, over a selected surface area of the body, and having mercury on the coated area of the body, such that a limited amount of the mercury is retained by the metal coating; and

sealing the open end of the exhaust tubulation;

whereby the amount of mercury retained on the body and thereby introduced into the lamp is limited by the selected surface area of the metal coating on the body; and

whereby the iron of the metal body reduces a portion of soluble mercury in the lamp to elemental mercury when the lamp is pulverized.



29. A carrier for mercury and iron for placement in a fluorescent lamp during manufacture of the lamp, the carrier comprising:

a body of metal material comprising iron;

a coating of a metal which amalgams with mercury over a selected surface area of said body; and

mercury disposed on said metal coating and retained thereby in an amount up to that permitted by the selected surface area of said metal coating;

said body being adapted for retention in the lamp after sealing of the lamp at completion of manufacture, and for introducing the permitted amount of mercury into the lamp; and

said iron is adapted to reduce a portion of leachable mercury in the lamp to elemental mercury upon pulverization of the lamp for test purposes.

30. A method for introducing a limited amount of mercury into an envelope of a fluorescent lamp during manufacture of the lamp, and for preventing flow of melted amalgam into the interior of the envelope, the method comprising the steps of:

forming the fluorescent lamp with an exhaust tubulation therein, the exhaust tubulation being open at an end thereof and being provided with a body retention structure proximate the open end;

exhausting the interior of the lamp envelope through the exhaust tubulation open end;

placing a body of metal material not reactive with mercury in the exhaust tubulation between the body retention structure and the exhaust tubulation open end, the body having a coating of a metal which amalgams with mercury over a selected surface area of the body, and having mercury on the coated area of the body, such that a limited and selected amount of the mercury is retained by the metal coating;

placing an amalgam supporting body in the exhaust tubulation between the body of metal material and the tubulation open end; and

sealing the open end of the exhaust tubulation;

whereby the amount of mercury retained on the body and thereby introduced into the lamp is limited by the selected surface area of the metal coating on the body; and

whereby the metal coating attracts melted amalgam to prevent the passage of melted amalgam therearound and into the interior of the lamp envelope.

31. The method in accordance with claim 30 wherein the body of metal material is of a selected one of (i) steel and (ii) a steel alloy.

32. The method in accordance with claim 30 wherein the coating is a selected one of silver, gold, indium, copper, tin, and alloys thereof.